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Industrial IoT Data Analysis & Visualization Project – Replenishment

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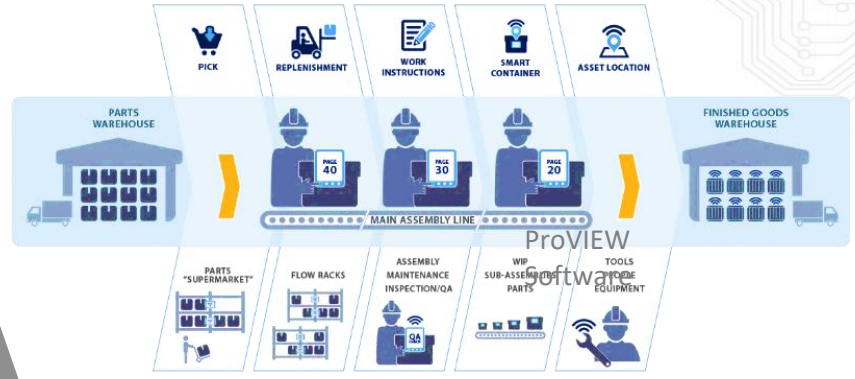
Panasonic IIoT Solutions

- **Target Market**:

  Applying Industrial IoT Solutions to Material Flow & Tracking Applications in Large Capital Goods Manufacturing Enterprises.

- **Products**:
  - ProVIEW Material Flow Software Solutions
  - Visual Tags + Active Tags + Other ProVIEW devices
  - Infrastructure: Readers and Networking Components
  - Consulting and Professional Services and Support
- **Locations**:
  - Worldwide



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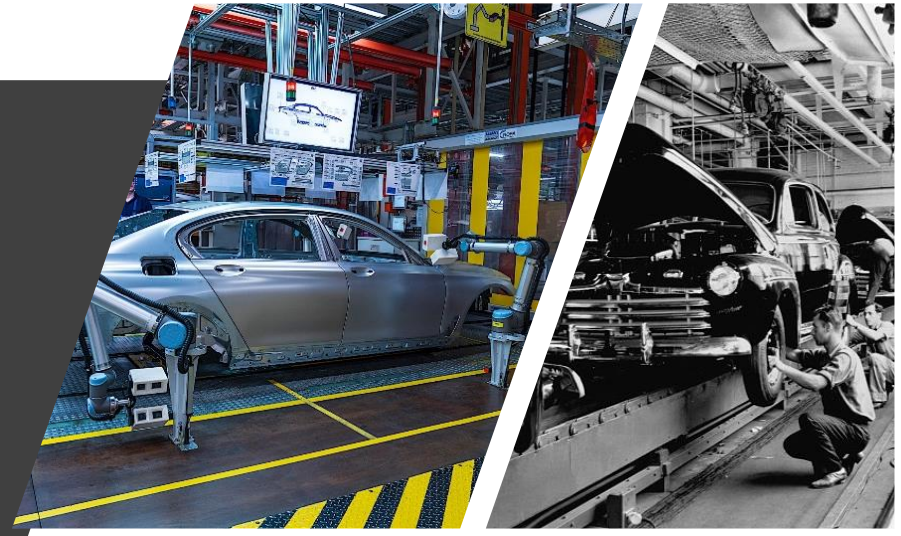
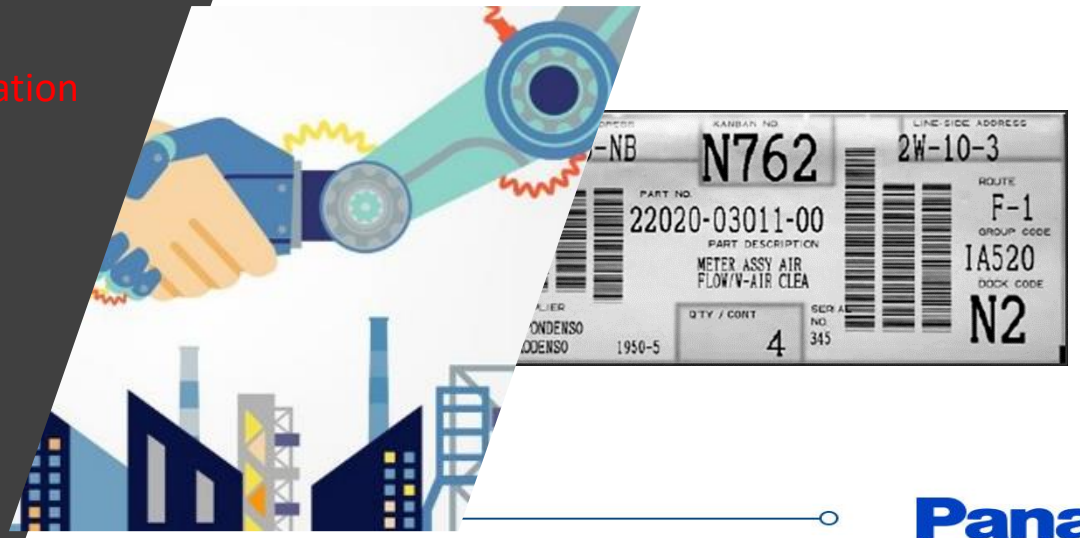
Manufacturing is Changing

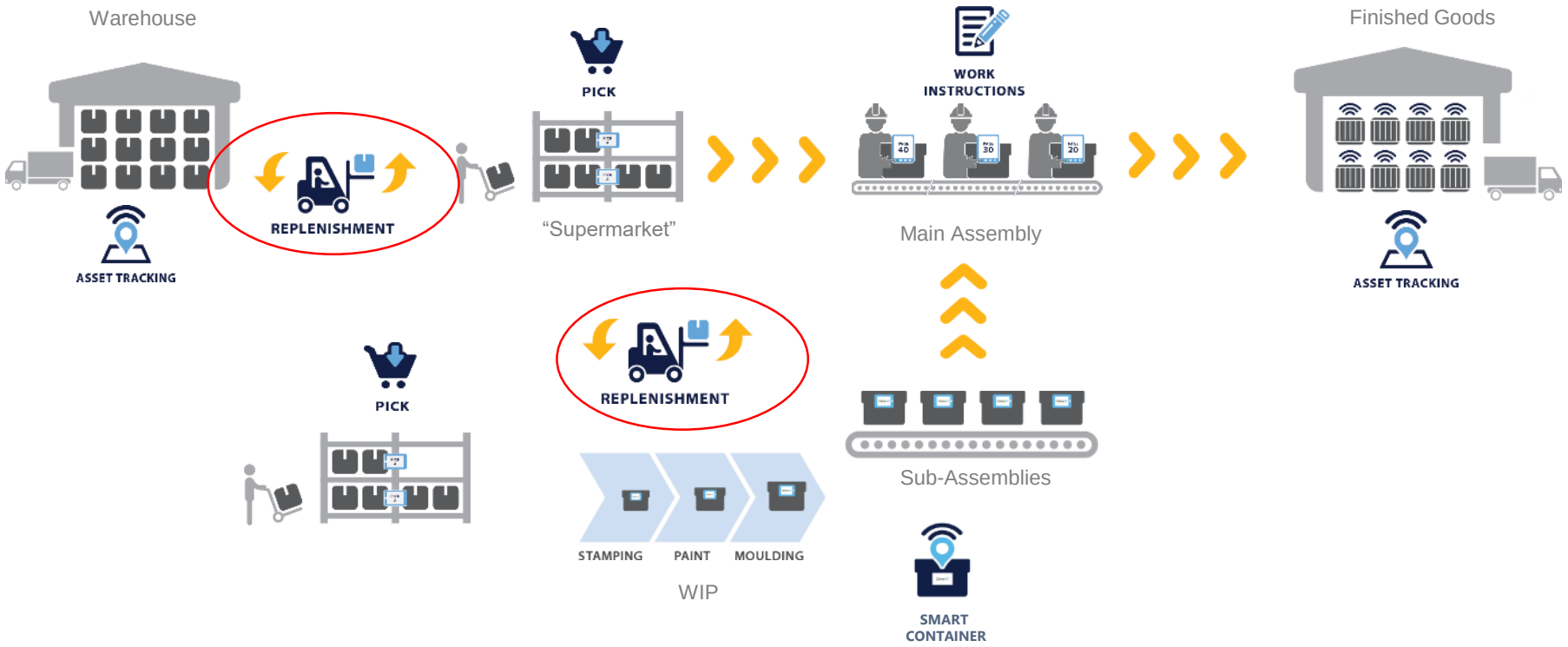
- Mass Production moving to Mass Customization
  - Batch of One! Just-in-Time moving to Just-in-Sequence
- Consumers demanding Real-Time Transparency
- Faster product cycles, more variations (complexity)
- Digital Thread – Process of Design through to Consumer Digitized
- Increased Regulatory Compliance
- Track & Trace Information, Data Visualization

However in Today's Factories ~90% of all Material Flows are driven by Paper Labeling/Barcode



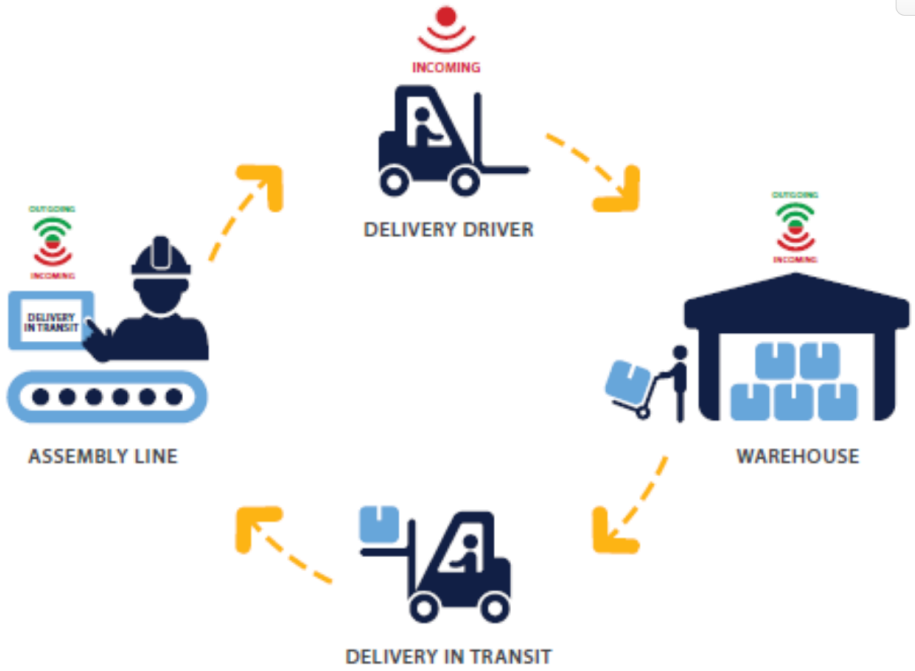


ProVIEW Software: Workflow Modules Supporting Common Factory Material Flows



ProVIEW is the only available solution covering 80-90% of all material flows in factories

Replenishment Example



Active Orders — Time: 15:04:22

Route	Workstation	Part	Status	Start Time	Total Elapsed Time	Current Elapsed Time	State
Green Route	Workstation #1	DLKE8982	Initiated	15:01:14	00:03:07	00:03:07	
Red Route	Workstation #11	PACK	Initiated	15:01:30	00:02:52	00:02:52	
Green Route	Workstation #1	FLV9382	Picked	15:02:29	00:02:16	00:01:53	
Green Route	Workstation #2	FLV9382	Initiated	15:02:42	00:01:38	00:01:39	

Create Request

Driver: Joe Driver

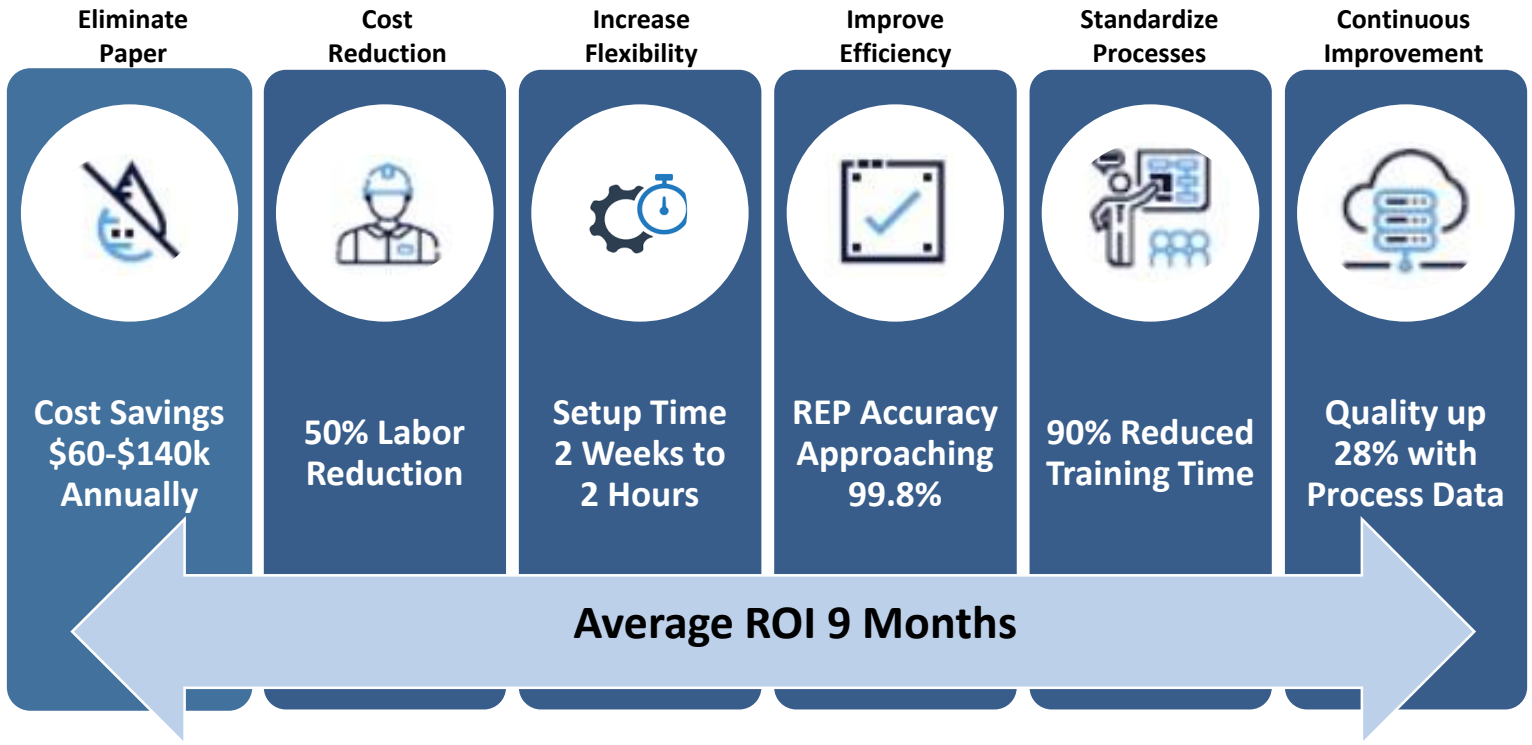
PICK

FLV9382	Qty: 100	DLKE8982	Qty: 50
Workstation	Workstation #1	Workstation	Workstation #1
Request Time	15:02:29	Request Time	15:04:57
Total Elapsed Time	00:02:39	Total Elapsed Time	00:00:11
Location	Rack #1	Location	Rack #2
Delivered		Delivered	

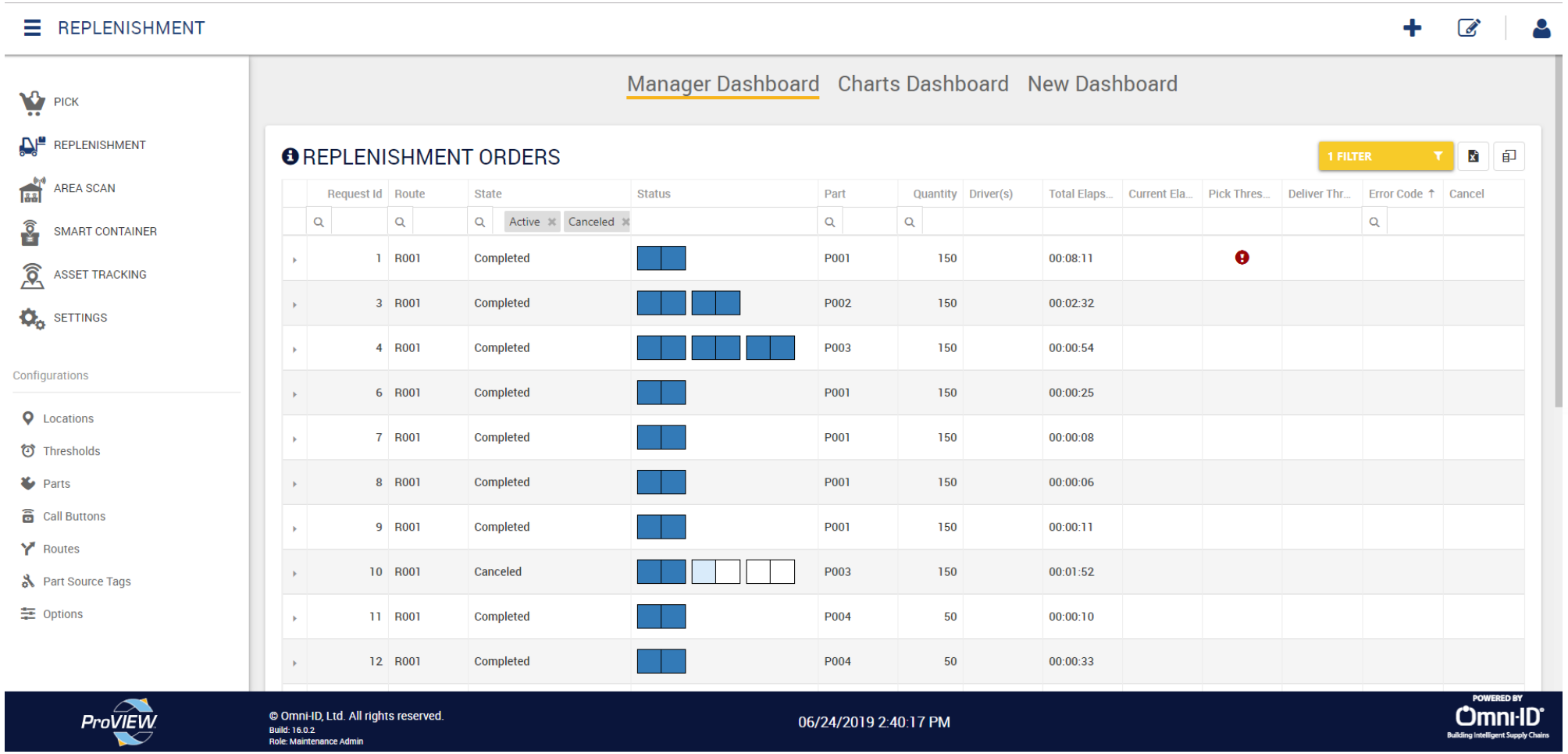
WAITING

PACK	Qty: 100	FLV9382	Qty: 100
Workstation	Workstation #11	Workstation	Workstation #2
Request Time	15:01:30	Request Time	15:02:42
Total Elapsed Time	00:03:37	Total Elapsed Time	00:02:25
Location	Supply Pile	Location	Rack #1
Pick		Pick	

ProVIEW REPLENISHMENT Benefits



ProVIEW REPLENISHMENT



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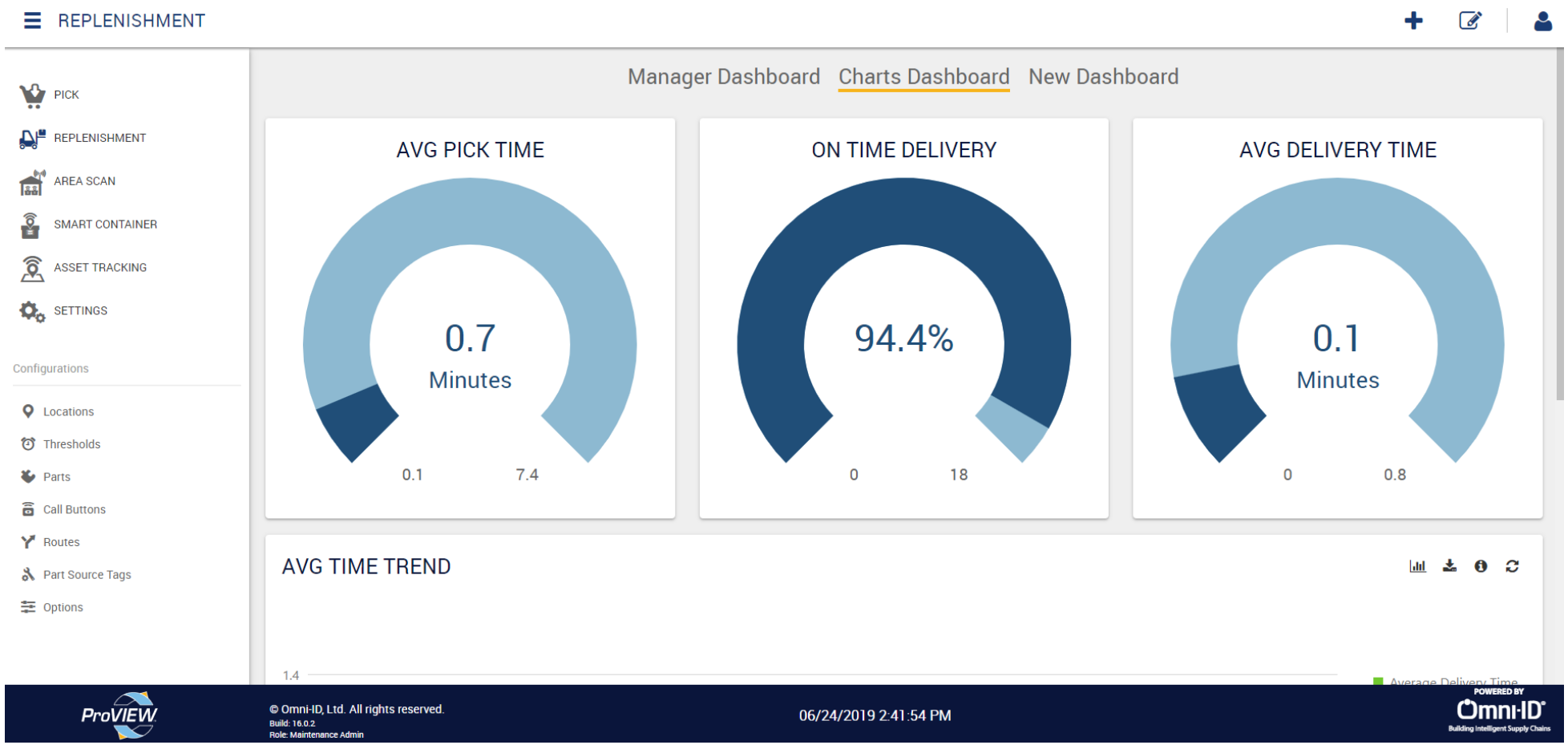
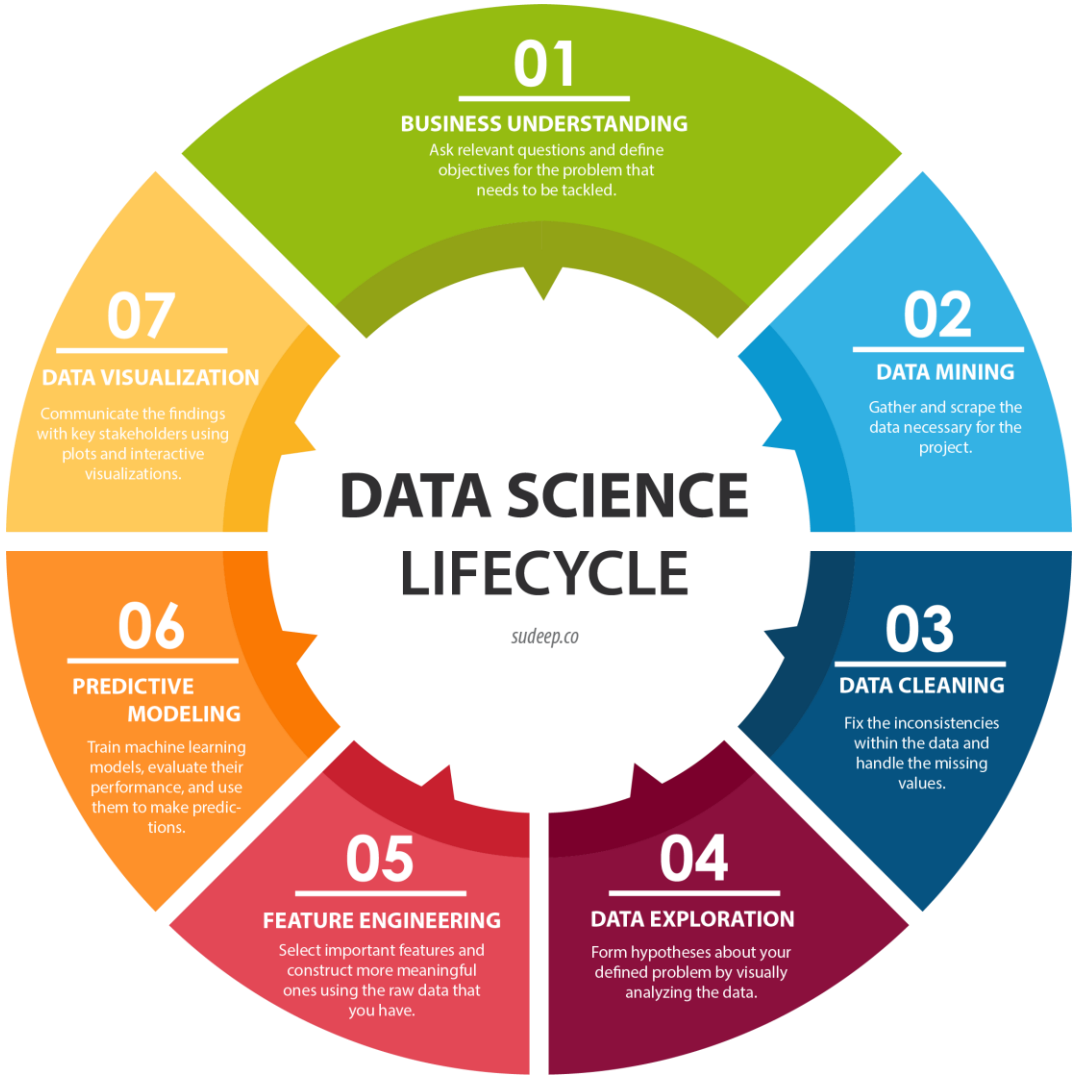

REPLENISHMENT
PICK
REPLENISHMENT
AREA SCAN
SMART CONTAINER
ASSET TRACKING
SETTINGS
Configurations
Locations
Thresholds
Parts
Call Buttons
Routes
Part Source Tags
Options
Manager Dashboard
Charts Dashboard
New Dashboard
AVG PICK TIME
0.7
Minutes
0.1
7.4
ON TIME DELIVERY
94.4%
0
18
AVG DELIVERY TIME
0.1
Minutes
0
0.8
AVG TIME TREND
1.4
Average Delivery Time
ProVIEW
© Omni-ID, Ltd. All rights reserved.
Build: 16.0.2
Role: Maintenance Admin
06/24/2019 2:41:54 PM
POWERED BY
Omni-ID
Building Intelligent Supply Chains

REPLENISHMENT: KEY PERFORMANCE INDICATORS (KPI)

1. How many parts are in play?
2. How many parts are very active? Which ones are they?
3. How many parts are least active? Which ones are they?
4. Which parts are not active at all?
5. How many times is a part replenished in a day? (Stock turns)
6. How many times was the threshold broken? Is the driver slacking off, or has trouble finding parts in the warehouse?
7. How many times were parts delivered on time?
8. What's the maximum pick time?
9. What's the maximum delivery time?
10. Is one driver delivering more parts than another?
11. Is one shift replenishing more parts than another?
12. Is the replenishment more active during one part of the day than another?

TECHNICAL INFORMATION



CAPSTONE PROJECT GOALS

- Determine the correct KPI's
  - Discuss and finalize the Data Dictionary for the variables needed
- Raw Data conversion to Staging based on KPI
  - R, Python
- Data analysis (Python, R)
- Display Analytics on Tableau for each KPI
  - Data collection
  - Data preparation
  - Exploratory analysis
  - Statistical testing – Ex: Morning performance v/s Afternoon
  - Presentable to end customer
- Nice To Have: Predictive Analysis